

.Appn. Number 10/762,783 (Kamenov) Amnt. A contd.

## SPECIFICATIONS:

### BACKGROUND OF THE INVENTION:

Page 2, last paragraph (lines 19 to 25) replace with the following new paragraph:

Unlike the Prior art systems, the present invention provides essentially only one moving element, its rotatably reciprocating vane piston. Since the piston itself opens the exhaust and intake ports for some chambers by moving past them, and at the same time it closes them for other chambers and vice versa, no other external valving means are required. Because of the pressure balancing on opposite sides of the vane members, they may be constructed of lightweight material and the need for heavy bearing, and counter-balancing means, are virtually eliminated. The invention is capable of running on multiple types of conventionally available fuel and may conceivably be operated on four chambers two-stroke cycles, two chamber two-stroke cycles or diesel cycles.

3 SUMMARY AND OBJECTS OF THE INVENTION:

4 Page 3, first paragraph (lines 2 to 7) replace with the following  
5 new paragraph:

6       The instant rotary vane engine comprises a simple rotary  
7  
8 vane assemblage mounted within a cylindrical housing a fixed  
9 abutment wall and means for the intake and exhaust of  
10 combustible mixture. Primary engine valving is  
11 accomplished by simple ports or apertures in the cylindrical  
12 housing and, or the end plates or heads for the casing and  
13 by the reciprocating motion of the vane assemblage which  
14 opens and closes the apertures at the appropriate moment.  
15

16  
17 With this arrangement no other additional internal or external  
18 valving means are needed. The bi-directional rotation of the  
19 output shaft, upon which the vanes are mounted, may be  
20 made uni-directional by external gearing system.  
21  
22  
23

3 BRIEF DESCRIPTIN OF THE DRAWINGS

4 Page4, fourth paragraph (lines 20 to 22) is cancelled, Fig. 5 and 6  
5 are withdrawn. Fig. 7 is renumbered as Fig. 5.

6 DETAILED DESCRIPTION

7  
8 Page 5, first paragraph (line 10) insert the following after“...inside  
it.” :

9  
10 This power output shaft is alternating and capable of  
11 imparting continuous rotation to the main shaft 22 via a  
12 crank 36 (Fig.2 & 3), secured to that shaft, and a connecting  
13 rod 20 swivably mounted to the crank and to the main shaft  
14 22 through a slot on the flywheel 21. The connecting rod 20  
15 is extendable and adjustable in length in the middle at point  
16 27. The lower part of the rod is rotatably and movably  
17 attached to a slot on the flywheel 21 and it is fixed together  
18 with a fastening member via that slot to the flywheel in a  
19 predetermine position thus adjusting the length of the stroke  
20 for an optimum performance. The fastening member  
21  
22  
23

comprises a bolt and a nut coupled to the lower end of the  
connecting rod 20 and to the slot on the flywheel 21.

Page 5, third paragraph (lines 16 to 25) replace with the following  
paragraph:

The casing 1 is also equipped with plurality of ports, 14 and  
15, which communicate between interior chambers a, b, c  
and d formed, as shown, between the vanes 7 and 8 and the  
casing walls 2 and 3. These ports allow the intake (15) of  
combustible fluid and lubricant and the exhaust (14)  
thereafter from the aforementioned casing chambers. At 24 a  
compressor, a carburetor or an injection system delivers fuel  
mixture into the engine through the intake ports. At 23 a box  
is shown, containing the electrical and electronic system of  
the engine.

3 DETAILED DESCRIPTION:

4 Page 6, second paragraph, delete: “as shown in Fig. 5 and 6”, (lines  
5 8 & 9).

6 Page 6, third and fourth paragraph (lines 11 to 25) and page 7, first  
7 and second paragraph (lines 1 to 18) replace with the following  
8 paragraphs:

9 In a two-stroke four chamber operation the engine works as  
10 follows. In the position of the vanes shown in Fig.1, vanes 7  
11 & 8 are moving in counterclockwise direction and air-fuel  
12 mixture and lubricant are being drawn in, through ports  
13 15 to the expanding chambers a & c after the vanes move  
14 past these ports.  
15

16  
17 Simultaneous with the expansions of the chambers a & c  
18 are the contractions of the chambers b & d. The previously  
19 drawn combustible fluid mixture in chambers b & d is being  
20 compressed by the vanes 7 & 8 against the walls 3 & 2. At  
21 maximum compression in chambers b & d, ignition means 17  
22  
23

1  
2 & 19 fire and cause vane 7 & 8 to rotate now clockwise with  
3  
4 concomitant expansions of these chambers. At the same time  
5 the burned exhaust gases in these chambers are free to leave  
6 through the ports 14, after the vanes open these ports by  
7  
8 moving past them. The fuel mixture in chambers a & c is  
9 now being compressed and new fuel mixture and lubricant is  
10 being drawn in in chambers b & d. The exhaust ports (in this  
11 case 14) are always a little bigger in diameter or size than the  
12 intake ports (15) in order for the exhaust to begin exiting  
13 before the intake begins thus releasing pressure in the  
14 appropriate ignited working chambers.  
15  
16

17 At maximum compression, the igniters fire sequentially in  
18 couples, in the known manner, so that each chamber  
19 experiences first an ignition-expanding, exhaust and intake  
20 cycle and second an additional exhaust and then a  
21 compression cycle.  
22  
23

Since the vanes 7 & 8 open and close intake and exhaust ports 15 & 14 for appropriate chambers, just by moving past them, there is no need for additional internal or external valving.

The four chamber two-stroke operation of the engine may be replaced by a dual chamber operation where all of the process described above are essentially the same.

Page 8, first paragraph, (lines 6 & 7) replace: "Fig, 1, 5 and 6" with: "Fig. 1." only.

Page 8, second paragraph, (line 12), insert after "...of the invention.":

"For smaller engines, instead of water-cooled, the invention may air-cooled by installing outwardly pointed heat-radiating ribs on the outside walls of the housing cylinder and the heads."